

Notice of Allowability

Application No.

09/967,138

Examiner

Anita K Alanko

Applicant(s)

TOM ET AL.

Art Unit

1765

eb

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/2/04 amdt.
2. ☒ The allowed claim(s) is/are 9-11, 13 and 20-46.
3. ☒ The drawings filed on 28 September 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

This application is in condition for allowance except for the presence of claims 1-8 drawn to a method non-elected without traverse in the Paper filed on October 29, 2003. Accordingly, claims 1-8 have been cancelled. A complete listing of the claims is below.

Art Unit: 1765

Claims 1-8 (Cancelled)

9. (Previously presented) A method for securely anchoring a barrier layer to a substrate in a printhead comprising:

forming at least one extending metallic anchor member supported by a substrate having a fluid ejector thereon; and

covering said anchor member with a layer of at least one fluid barrier material, said anchor member securely attaching said layer of fluid barrier material to said substrate.

10. (Previously presented) The method of claim 9 wherein said anchor member is comprised of a metal selected from the group consisting of tantalum, aluminum, rhodium, chromium, titanium, molybdenum, and mixtures thereof.

11. (Previously presented) The method of claim 9 wherein said anchor member has a thickness of about 0.3 – 1.0 μm .

Claim 12 (Cancelled).

13. (Previously Presented) A method for securely anchoring a barrier layer to a substrate in a printhead comprising:

applying at least one layer comprised of metal to a substrate having a fluid ejector;

forming, with said layer, at least one extending metallic anchor member; and

covering said anchor member with a layer of at least one fluid barrier material, said anchor member securely attaching said ink barrier material to said substrate.

Claims 14-19 (Cancelled).

20. (Previously Presented) A method of forming a fluid ejection device comprising:

disposing a mechanical intercoupling structure on a substrate at least one fluid ejector

thereon;

disposing a chamber layer over said substrate, wherein side walls of an ejection chamber are defined with the chamber layer;

substantially embedding said mechanical intercoupling structure with the chamber layer; and

encapsulating the mechanical intercoupling structure with the substrate and the chamber layer.

21. (Previously Presented) The method of claim 20, wherein said mechanical intercoupling structure secures said chamber layer to said substrate.

22. (Previously Presented) The method of claim 20, wherein said mechanical intercoupling structure is comprised of a metal.

23. (Previously Presented) The method of claim 22, wherein said mechanical intercoupling structure includes at least one of the metals tantalum, aluminum, rhodium, chromium, titanium, molybdenum, tungsten, platinum, and palladium.

24. (Previously Presented) The method of claim 20, wherein said chamber layer covers a conductive trace, wherein said chamber layer is a fluid barrier that substantially hinders interaction of a fluid with said conductive trace.

25. (Previously Presented) The method of claim 20, wherein said chamber layer comprises an electrically insulative material.

26. (Previously Presented) The method of claim 20, wherein said chamber layer comprises a polymer.

27. (Previously Presented) The method of claim 20, wherein said mechanical intercoupling

structure is substantially hour-glass shaped in that the structure has top and bottom surfaces, and a narrowed portion therebetween.

28. (Previously Presented) The method of claim 20, wherein said mechanical intercoupling structure includes a concave side wall.

29. (Previously Presented) The method of claim 20, wherein said concave side wall is curved.

30. (Previously Presented) The method of claim 20, wherein said mechanical intercoupling structure includes: a top surface defining a top surface width; a bottom surface; and a central portion between the top surface and the bottom surface defining a width that is less than the top surface width.

31. (Previously Presented) A method of coupling a barrier layer to a substrate of a fluid ejection device comprising:

positioning at least one metallic anchor member on a substrate;

positioning a layer of barrier material over the substrate and the at least one metallic anchor member;

substantially embedding said at least one metallic anchor member with the layer of barrier material; and

encapsulating the at least one metallic anchor member with the substrate and the barrier layer.

32. (Previously Presented) The method of claim 31, wherein said metallic anchor member secures said layer of barrier material to said substrate.

33. (Previously Presented) The method of claim 31, wherein said metallic anchor member

further includes:

a first metal layer disposed on a portion of said substrate; and

a second metal layer disposed on at least a portion of said first metal layer, and wherein said second metal layer is different from said first metal layer.

34. (Previously Presented) The method of claim 33, wherein said metallic anchor member is substantially hour-glass shaped in that the structure has top and bottom surfaces, and a narrowed portion therebetween.

35. (Previously Presented) The method of claim 31, wherein said metallic anchor member includes a concave side wall.

36. (Previously Presented) The method of claim 35, wherein said concave side wall is curved.

37. (Previously Presented) The method of claim 31, wherein said metallic anchor member includes:

a top surface defining a top surface width;

a bottom surface; and

a central portion between the top surface and the bottom surface defining a width that is less than the top surface width.

38. (Previously Presented) A method of forming a fluid ejection cartridge comprising:

fluidically coupled a fluid reservoir with a fluid ejection device, wherein the fluid ejection device has a substrate having at least one fluid ejector thereon, a mechanical intercoupling structure disposed on said substrate, and a firing chamber layer disposed on said substrate and defining side walls of a firing chamber; and

substantially embedding said mechanical intercoupling structure into the firing chamber layer; and

encapsulating the mechanical intercoupling structure with the substrate and the firing chamber layer.

39. (Previously Presented) The method of claim 38, wherein said mechanical intercoupling structure secures said firing chamber layer to said substrate.

40. (Previously Presented) The method of claim 38, wherein said mechanical intercoupling structure is comprised of a metal.

41. (Previously Presented) The method of claim 38, wherein said mechanical intercoupling structure includes: a first metal layer disposed on a portion of said substrate; and a second metal layer disposed on at least a portion of said first metal layer, and wherein said second metal layer is different from said first metal layer.

42. (Previously Presented) The method of claim 38, wherein said mechanical intercoupling structure is substantially hour-glass shaped in that the structure has top and bottom surfaces, and a narrowed portion therebetween.

43. (Previously Presented) The method of claim 42, wherein said mechanical intercoupling structure includes a concave side wall.

44. (Previously Presented) The method of claim 43, wherein said concave side wall is curved.

45. (Previously Presented) A method of coupling a barrier layer to a substrate of a fluid ejection device comprising:

forming a fluid ejector on a first area of said substrate;

disposing the barrier layer over a second area that surrounds the first area, wherein the barrier layer surrounds said fluid ejector;

a substrate having a first area surrounded by said second area;

coupling said barrier layer to said substrate in the second area with an anchor means; and

encapsulating the anchor means with the substrate and the barrier layer.

46. (Previously Presented) The method of claim 45, wherein said anchor means includes an anchor member extending from said substrate and encompassed by said barrier layer, wherein said anchor member has a concave and curved side wall.

Allowable Subject Matter

Claims 9-11, 13, 20-46 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art does not teach or suggest a method for securely anchoring a barrier layer to a substrate in a printhead comprising forming at least one extending metallic anchor member supported by a substrate having a fluid ejector thereon; and

covering said anchor member with a layer of at least one fluid barrier material, said anchor member securely attaching said layer of fluid barrier material to said substrate, as in the context of claim 9.

The closest prior art, Cloutier, discloses a printhead with an anchor member, however there is no disclosure nor motivation to provide for covering said anchor member with a layer of at least one fluid barrier material, said anchor member securely attaching said layer of fluid barrier material to said substrate, as in the context of claim 9.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon, Tues & Fri: 8:30 am-5 pm; Wed&Thurs: 10 am-2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Anita K Alanko
Primary Examiner
Art Unit 1765